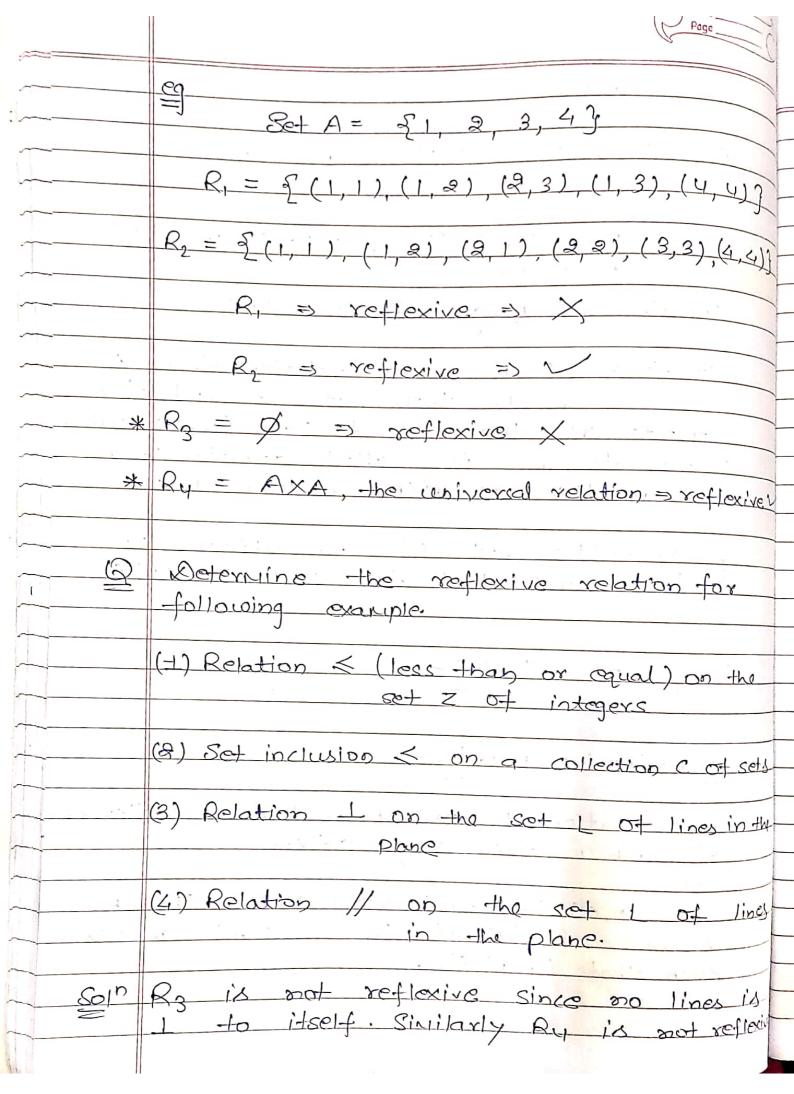
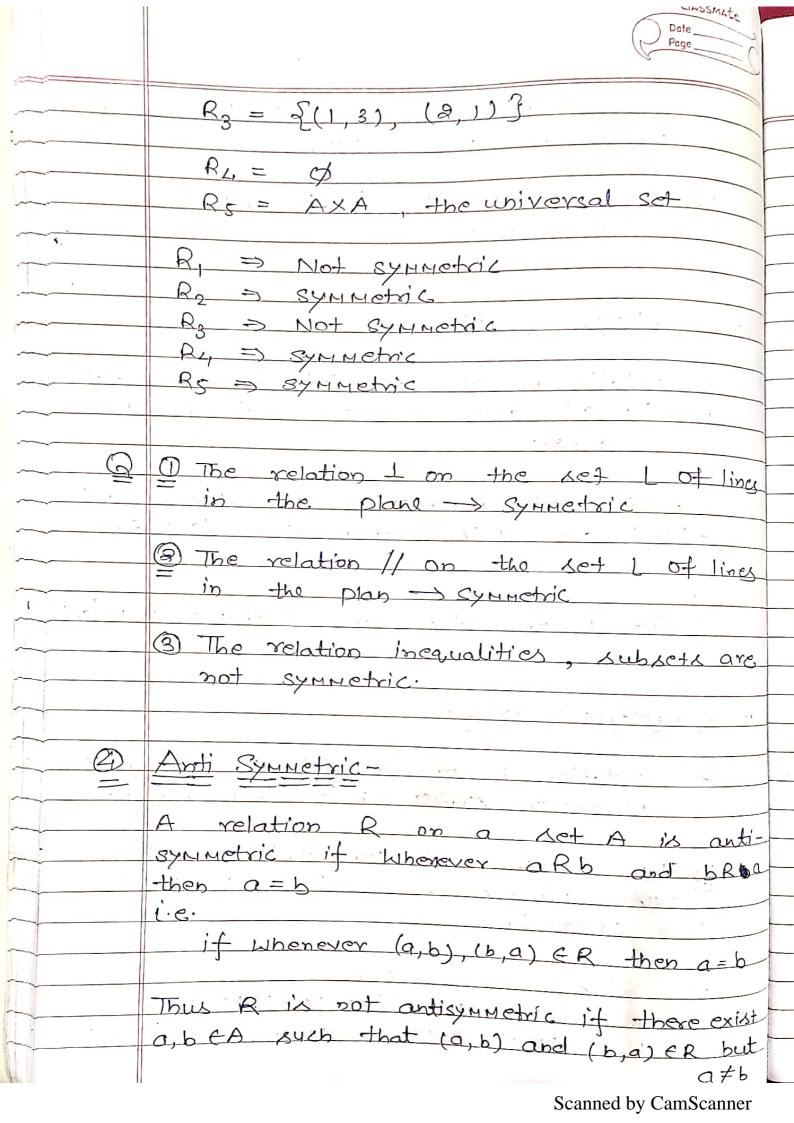
 Religny
Cartesian Product of two cet - Ket A
Where ara & beB is called andered
Product of A 8. B.
A = 51, 2, 33 $B = 50, 63$
 $A \times B = S(1,a), (1,b), (2,a), (2,b), (3,a), (3,b)$
 $B \times A = \mathcal{L}(a,1), (a,2), (a,3), (b,1), (b,2), (b,3)$
But ⇒ [AXB ≠ BXA]
Relation -
then any subset of any
then any subset of AXB is called "g".
i.e
Ket at A & beB then Pair (a,b)
then we write of (a,b) ER
then we write a R b which is read

	for example-
	D Ket A = {3,6,93, B= {4,8,123
- ,	then $R = 2(3, 1), (3, 8), (4, 12) $ is relation A to B.
	Donain & Rome of a relation-
	Domain => If R is a relation from A 2 B then set of all first elements of the ordered Pair (x, y), which belongs to R is called domain of R and written as D(R) or DOM(R).
	Range => The set of all objects y such that for some x, (x;y) ER
	Types of Relation-
	@ Reflexive Relation-
- 1	A relation R on a set A ix reflexive
	if (a,a) ER for every a EA / This R is not reflexive if there exist an a EA
	sych that (a,a) &R.



	Since no lines are parallel to itself.
	2 R, 2 R, are reflexive.
	Parallel l Perpendicular 2) à la let et différent
	lines 8 7 Compulsory &1
	compensory c
(2)	Irreflexive relation-
	A relation R on a set A is irrefloxive
	if (a, a) does not comes to R for
	every a EA-
-	i.e.
	R is not irreflexive if there exist
	atleast one a EA such that (a, a) EA
	Cateast Cive Cress Substitute (1)
	eo.
	eg Not R on Set A such that R = {(a,b) a+b}
V 1	- White the description of the
	. William Connect in the Maria
(a)	Example xelation-
(3)	Symmetric relation-
	A relation R on a set A is symmetric
	if whenever across aRb then bRa.
	Thus R is not symmetric if there
1.8	Thus R is not symmetric if there exist 0, b & A such that (0, b) & R
	L L CL 01 G/D
	but (b, a) & R
	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
	$C = \{(1, 1), (1, 4), (3, 3), (1, 2), (1, 2), (2, 1)\}$
<u> </u>	$R_2 = \{(1,1),(2,2),(3,3),(4,4),(1,2),(2,1)\}$



) के लिये = Reflexive की ब्लिइन्स् & सारे classmate pate page page
	$A = \{1, 2, 3, 4\}$ $R_1 = \{(1,1), (1,2), (2,3), (1,3), (4,4)\}$
	$R_2 = \{(1,1), (2,2), (3,3), (4,4), (1,2), (2,1)\}$ $R_3 = \{(1,3), (2,1)\}$ $R_1 \Rightarrow \text{ anti symmetric}$
	$R_2 \Rightarrow not$ anti symmetric $R_3 \Rightarrow anti symmetric$ $R_4 = \emptyset \Rightarrow Antisymmetric$ $R_5 = A \times A \Rightarrow universal set \Rightarrow Not antisymmetric$
	* The properties of being symmetric & being antisymmetric are not negative of cash other.
- 40 / 6 -	R is neither symmetric nor anti- Symmetric.
	* $R' = \{(1,1), (2,2)\}$ R' is both Symmetric 2 anti symmetric.

	ruge
<u> </u>	Transitive relation-
1	A relation R on set A is transitive
4	if whenever aRb & bRC the aRC.
	i.e.
~	if whenever (a,b), (b, () ER then (a,c) ER
	Thus R is not transitive if there exist
~	a,b,c EA such that (a,b), (b,c) ER
	but (a,c) &R
	in the real way was
	eg in last example-
	0 => 10 (11)
	$R_1 \Rightarrow + \text{ransitive}$
	$R_2 \Rightarrow transitive$
	Rg => not transitive
	Equivalance relation-
	A relation R on set S is an equivalent
	relation if R is reflexive, symmetric
~	2 transitive.
<u></u>	
	i.e.
	(i) for every a ES, aRq
~	(ii) if aRb then bRa
<u> </u>	(iii) if aRb, bRC then aRC
1	

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eg (D) in last example
R2 => SYMMetric V, reflexive V, transitive
equivalance v
(2) Paralil of many last
3) cauality of numbers on a set
3) canality of subsets of universal sets.
@ Similarity of tringle on the set of triangles.